What is claimed is:

1. A process for making a thin film heterojunction photovoltaic device comprising the steps of:
   (a) depositing a first film of p-type copper indium diselenide film on a metal back contact;
   (b) depositing on the upper surface of the copper indium diselenide film a group II(a,b) and VII elemental salt;
   (c) converting the p-type the upper copper indium diselenide film surface n-type by thermal diffusion of the salt into the copper indium diselenide film;
   (d) depositing a second thin film layer of high resistivity zinc oxide; and
   (e) depositing a third film of n-type transparent zinc oxide on the second thin film high resistivity zinc oxide layer.

2. A process according to claim I in which the group II(a,b) and VII elemental salt is zinc chloride.

3. A process according to claim 2 wherein zinc chloride is deposited on the copper indium diselenide film surface from solid zinc chloride in a vapor phase through sublimation.

4. A process according to claim 2 wherein zinc chloride is deposited on the copper indium diselenide film surface from a zinc chloride solution by chemical vapor deposition.

5. A process according to claim 4 wherein the zinc chloride solution comprises zinc chloride in methanol.

6. A process according to claim 1 wherein the ~~elemental salt~~ group IIb halide and copper indium diselenide are thermally diffused at 190-220°C.

7. A process according to claim 1 wherein the ~~elemental salt~~ group IIb halide and copper indium diselenide are heated in contact for 10-60 minutes.

8. A process according to claim 1 further comprising cleaning the n-type converted copper indium diselenide film surface with deionized water and etching with dilute hydrochloric acid.

9. A process according to claim 8 wherein the hydrochloric acid solution is 10% hydrochloric acid in water.

10. A thin film photovoltaic device comprising, in order, a first layer of p-type copper indium diselenide semiconductor having a type converted upper region rendered n-type by thermal diffusion of a group II(a,b) and VII elemental salt, a second layer of high resistivity zinc oxide

semiconductor in contact with said first layer, and a third layer of low resistivity zinc oxide semiconductor in contact with said second layer.

11. A device according to claim 10, wherein the group II(a,b) and VII elemental salt is zinc chloride.